

Title	<i>Insertion Device Control - Maintenance & Upgrade</i>			
Project Requestor	Ned Arnold, Liz Moog			
Date	3/25/08			
Group Leader(s)	Ned Arnold, Liz Moog			
Machine or Sector Manager				
Category	Accelerator hardware and Insertion Device Upgrades			
Content ID*	APS_1255062	Rev.	1	03/25/2008 8:21 AM

*This row is filled in automatically on check in to ICMS. See Note ¹

Description:

Start Year (FY)	FY09	Duration (Yr)	5 years
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Objectives:

Procure sufficient spare components (primarily encoders) to keep the current devices operational. Also procure samples of new types of encoders for in-ring lifetime testing, so a program of replacing the encoders that fail most commonly with a hardier alternative can begin soon. A period of piggybacking a new encoder with the type presently in use will be advisable, to establish longevity. In FY10, begin installation of the upgraded version of the control system on several IDs per year (rate of replacement determined by failures and available funds) to eliminate obsolete parts and improve maintainability.

Benefit:

Precise control of the Insertion Devices is critical for all user operations. Ongoing problems with radiation sensitive encoders and obsolete parts in the control system demand a large investment per year of maintenance which our group M&S budgets cannot afford.

Risks of Project: See Note ²

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Consequences of Not Doing Project: See Note ³

Experience shows that the encoders will continue to fail (22 encoders failed and required replacement in 2007). It is imperative to have a sufficient stock of spares. The consequences of not doing the ID control upgrade are that certain obsolete components would become harder to support. Also, spending would be on simply replacing encoders with more of the same rather than with new and hardier encoders.

Cost/Benefit Analysis: See Note ⁴

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Description:

Procure sufficient spare components (primarily encoders) to keep the current devices operational. Find a hardier alternative encoder that won't fail as often. In FY10, begin installation of the upgraded version of the control system on several IDs per year (rate of replacement determined by available funds) to eliminate obsolete parts and improve maintainability.

Funding Details

Cost: (\$K)

Use FY08 dollars.

**Strategic Project Proposal
Funding Details
FY 08 \$**

Cost (\$k)

Year	AIP	Contingency
1	50	10%
2	150	10%
3	150	10%
4	150	10%
5	150	10%

Contingency may be in dollars or percent. Enter figure for total project contingency.

Effort: (FTE)

The effort portion need not be filled out in detail by March 28

Year	Mechanical Engineer	Electrical Engineer	Physicist	Software Engineer	Tech	Designer	Post Doc	Total
1								0
2								0
3								0
4								0
5								0
6								0
7								0
8								0
9								0

Notes:

¹ **ICMS.** Check in first revision to ICMS as a *New Check In*. Subsequent revisions should be checked in as revisions to that document i.e. *Check Out* the previous version and *Check In* the new version. Be sure to complete the *Document Date* field on the check in screen.

² **Risk Assessment.** Advise of the potential impact to the facility or operations that may result as a consequence of performing the proposed activity. Example: If the proposed project is undertaken then other systems impacted by the work include ... (If no assessment is appropriate then enter NA.)

³ **Consequence Assessment.** Advise of the potential consequences to the facility or to operations if the proposal is not executed. Example: If the proposed project is not undertaken then ____ may happen to the facility. (If no assessment is appropriate then enter NA.)

⁴ **Cost Benefit Analysis.** Describe cost efficiencies or value of the risk mitigated by the expenditure. Example: Failure to complete this maintenance project will result in increased total costs to the APS for emergency repairs and this investment of ____ will also result in improved reliability of _____. (If no assessment is appropriate then enter NA.)